



# Configuring Distributed Virtual Switches in Cisco UCS

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## Distributed Virtual Switches

The Cisco UCS distributed virtual switch (DVS) is a software-based virtual switch that runs along side the vSwitch in the ESX hypervisor and can be distributed across multiple ESX hosts. Unlike the vSwitch, which uses its own local port configuration, a DVS that is associated with multiple ESX hosts uses the same port configuration across all ESX hosts.

After associating an ESX host to a DVS, you can migrate existing VMs from the vSwitch to the DVS, and you can create VMs to use the DVS instead of the vSwitch. With the VM-FEX for VMware implementation, when a VM uses the DVS, all VM traffic passes through the DVS and ASIC-based switching is performed by the fabric interconnect.

## Overview of Creating a DVS in Cisco UCS Manager

To create a distributed virtual switch (DVS) in Cisco UCS Manager, you must first create a vCenter, a datacenter under the vCenter, and a datacenter folder under the datacenter. You can then create a DVS in the datacenter folder. The vCenter name you specify in Cisco UCS Manager does not need to match the vCenter name specified in VMware vCenter; however, the datacenter name you specify in Cisco UCS Manager must match the datacenter name specified in VMware vCenter. The datacenter folder and DVS you create in Cisco UCS Manager are pushed to VMware vCenter.

# Configuring a Distributed Virtual Switch

## Before You Begin

You must first create a datacenter in VMware vCenter. Do not create the folder inside the datacenter or the DVS in VMware vCenter.

## Procedure

- Step 1** In the **Navigation** pane, click the **VM** tab.
- Step 2** On the **VM** tab, expand the **All** node.
- Step 3** Right-click the **VMWare** node and choose **Configure vCenter**.
- Step 4** On the **Configure vCenter** page, do the following:
- Complete the following fields:

Name	Description
<b>Name</b> field	The name of the vCenter folder.  This name can be between 1 and 16 characters. You can use spaces and any other ASCII characters except for ` (accent), \ (back slash), ^ (carat), " (double quote), / (forward slash), > (greater than), < (less than), or ' (single quote).
<b>Description</b> field	A user-defined description of the folder.  Enter up to 256 characters. You can use any characters or spaces except ` (accent mark), \ (backslash), ^ (carat), " (double quote), = (equal sign), > (greater than), < (less than), or ' (single quote).

- Click **Next**.

- Step 5** On the **Create Folder** page, click one of the following:

Option	Description
<b>Next</b>	Moves to the next page. Choose this option if the vCenter structure does not require you to include the datacenter in a high-level folder.  If you choose this option, continue with Step 7.
<b>Add</b>	Opens the <b>Create Folder</b> dialog box, where you can add a high-level folder above the datacenter.  If you choose this option, continue with Step 6.

- Step 6** (Optional) In the **Create Folder** dialog box, do the following:
- Complete the following fields:

Name	Description
Name field	<p>The name of the vCenter folder.</p> <p>This name can be between 1 and 16 characters. You can use spaces and any other ASCII characters except for ` (accent), \ (back slash), ^ (carat), " (double quote), / (forward slash), &gt; (greater than), &lt; (less than), or ' (single quote).</p>
Description field	<p>A user-defined description of the folder.</p> <p>Enter up to 256 characters. You can use any characters or spaces except ` (accent mark), \ (backslash), ^ (carat), " (double quote), = (equal sign), &gt; (greater than), &lt; (less than), or ' (single quote).</p>

b) Click **Next**.

**Step 7** On the **Create Datacenter** page, do the following:

a) Click **Add**.

b) In the **Create Datacenter** dialog box, complete the following fields:

Name	Description
Name field	<p>The name of the datacenter.</p> <p>This name can be between 1 and 16 characters. You can use spaces and any other ASCII characters except for ` (accent), \ (back slash), ^ (carat), " (double quote), / (forward slash), &gt; (greater than), &lt; (less than), or ' (single quote).</p> <p>The datacenter name that you specify in Cisco UCS Manager must match the name of the datacenter previously created in VMware vCenter.</p>
Description field	<p>The user-defined description of the datacenter.</p> <p>Enter up to 256 characters. You can use any characters or spaces except ` (accent mark), \ (backslash), ^ (carat), " (double quote), = (equal sign), &gt; (greater than), &lt; (less than), or ' (single quote).</p>

c) Click **Next**.

**Step 8** In the **Create Folder** page, do the following to create a folder in the datacenter:

a) Click **Add**.

b) In the **Create Folder** dialog box, complete the following fields:

Name	Description
<b>Name field</b>	The name of the vCenter folder. This name can be between 1 and 16 characters. You can use spaces and any other ASCII characters except for ` (accent), \ (back slash), ^ (carat), " (double quote), / (forward slash), > (greater than), < (less than), or ' (single quote).
<b>Description field</b>	A user-defined description of the folder. Enter up to 256 characters. You can use any characters or spaces except ` (accent mark), \ (backslash), ^ (carat), " (double quote), = (equal sign), > (greater than), < (less than), or ' (single quote).

c) Click **Next**.

**Step 9** On the **Create Distributed Virtual Switches** page, do the following to create a distributed virtual switch in the folder:

- Click **Add** to add a distributed virtual switch to the folder.
- In the **Create Distributed Virtual Switches** dialog box, complete the following fields:

Name	Description
<b>Name field</b>	The name of the distributed virtual switch. This name can be between 1 and 16 characters. You can use spaces and any other ASCII characters except for ` (accent), \ (back slash), ^ (carat), " (double quote), / (forward slash), > (greater than), < (less than), or ' (single quote).
<b>Description field</b>	The user-defined description of the distributed virtual switch. Enter up to 256 characters. You can use any characters or spaces except ` (accent mark), \ (backslash), ^ (carat), " (double quote), = (equal sign), > (greater than), < (less than), or ' (single quote).
<b>Admin State field</b>	This can be one of the following: <ul style="list-style-type: none"> <li>• <b>Enabled</b></li> <li>• <b>Disabled</b></li> </ul> <p>If you disable the DVS, Cisco UCS Manager does not push any configuration changes related to the DVS to VMware vCenter.</p>

c) Click **OK**.

**Step 10** Click **Finish** if you have finished adding all datacenters, folders, and DVSEs to the vCenter. You may need to click **Finish** more than once to exit the wizard. You can stop at any page to add another datacenter, folder, or DVS.

# Managing Distributed Virtual Switches

## Adding a Folder to an Existing vCenter

You can add a folder inside an existing vCenter and place your datacenters inside the folder. However, this folder is optional.

### Procedure

- Step 1** In the **Navigation** pane, click the **VM** tab.
- Step 2** On the **VM** tab, expand the **VMWare** node.
- Step 3** Right-click the vCenter to which you want to add a datacenter and choose **Create Folder**.
- Step 4** (Optional) In the **Create Folder** dialog box, do the following:
- a) Complete the following fields:

Name	Description
Name field	<p>The name of the vCenter folder.</p> <p>This name can be between 1 and 16 characters. You can use spaces and any other ASCII characters except for ` (accent), \ (back slash), ^ (carat), " (double quote), / (forward slash), &gt; (greater than), &lt; (less than), or ' (single quote).</p>
Description field	<p>A user-defined description of the folder.</p> <p>Enter up to 256 characters. You can use any characters or spaces except ` (accent mark), \ (backslash), ^ (carat), " (double quote), = (equal sign), &gt; (greater than), &lt; (less than), or ' (single quote).</p>

- b) Click **Next**.
- Step 5** On the **Create Datacenter** page, do the following:
- a) Click **Add**.
  - b) In the **Create Datacenter** dialog box, complete the following fields:

Name	Description
<b>Name field</b>	<p>The name of the datacenter.</p> <p>This name can be between 1 and 16 characters. You can use spaces and any other ASCII characters except for ` (accent), \ (back slash), ^ (carat), " (double quote), / (forward slash), &gt; (greater than), &lt; (less than), or ' (single quote).</p> <p>The datacenter name that you specify in Cisco UCS Manager must match the name of the datacenter previously created in VMware vCenter.</p>
<b>Description field</b>	<p>The user-defined description of the datacenter.</p> <p>Enter up to 256 characters. You can use any characters or spaces except ` (accent mark), \ (backslash), ^ (carat), " (double quote), = (equal sign), &gt; (greater than), &lt; (less than), or ' (single quote).</p>

c) Click **Next**.

**Step 6** In the **Create Folder** page, do the following to create a folder in the datacenter:

- a) Click **Add**.
- b) In the **Create Folder** dialog box, complete the following fields:

Name	Description
<b>Name field</b>	<p>The name of the vCenter folder.</p> <p>This name can be between 1 and 16 characters. You can use spaces and any other ASCII characters except for ` (accent), \ (back slash), ^ (carat), " (double quote), / (forward slash), &gt; (greater than), &lt; (less than), or ' (single quote).</p>
<b>Description field</b>	<p>A user-defined description of the folder.</p> <p>Enter up to 256 characters. You can use any characters or spaces except ` (accent mark), \ (backslash), ^ (carat), " (double quote), = (equal sign), &gt; (greater than), &lt; (less than), or ' (single quote).</p>

c) Click **Next**.

**Step 7** On the **Create Distributed Virtual Switches** page, do the following to create a distributed virtual switch in the folder:

- a) Click **Add** to add a distributed virtual switch to the folder.
- b) In the **Create Distributed Virtual Switches** dialog box, complete the following fields:

Name	Description
Name field	<p>The name of the distributed virtual switch.</p> <p>This name can be between 1 and 16 characters. You can use spaces and any other ASCII characters except for ` (accent), \ (back slash), ^ (carat), " (double quote), / (forward slash), &gt; (greater than), &lt; (less than), or ' (single quote).</p>
Description field	<p>The user-defined description of the distributed virtual switch.</p> <p>Enter up to 256 characters. You can use any characters or spaces except ` (accent mark), \ (backslash), ^ (carat), " (double quote), = (equal sign), &gt; (greater than), &lt; (less than), or ' (single quote).</p>
Admin State field	<p>This can be one of the following:</p> <ul style="list-style-type: none"> <li>• <b>Enabled</b></li> <li>• <b>Disabled</b></li> </ul> <p>If you disable the DVS, Cisco UCS Manager does not push any configuration changes related to the DVS to VMware vCenter.</p>

c) Click **OK**.

**Step 8** Click **Finish** if you have finished adding all datacenters, folders, and DVSES to the folder. You may need to click **Finish** more than once to exit the wizard. You can stop at any page to add another datacenter, folder, or DVS.

## Adding a Datacenter to an Existing vCenter

### Before You Begin

You must first create a datacenter in VMware vCenter. Do not create the folder inside the datacenter or the DVS in VMware vCenter.



#### Note

VMware vCenter carries a default limitation of 8192 vDS ports per DVS. Cisco UCS Manager also has a limitation of 4096 ports per DVS. Assuming that user has reached the 4096 limit in Cisco UCS Manager, this will actually consume 5336 ports on the VMware vCenter side (including deleted-pg, uplink-pg, and other implicitly created port-profiles). The remaining ports left can be consumed by adding hosts to the DVS.

## Procedure

- Step 1** In the **Navigation** pane, click the **VM** tab.
- Step 2** On the **VM** tab, expand the **VMWare** node.
- Step 3** Right-click the vCenter to which you want to add a datacenter and choose **Create Datacenter**.
- Step 4** On the **Create Datacenter** page, do the following:
- Click **Add**.
  - In the **Create Datacenter** dialog box, complete the following fields:

Name	Description
<b>Name</b> field	<p>The name of the datacenter.</p> <p>This name can be between 1 and 16 characters. You can use spaces and any other ASCII characters except for ` (accent), \ (back slash), ^ (carat), " (double quote), / (forward slash), &gt; (greater than), &lt; (less than), or ' (single quote).</p> <p>The datacenter name that you specify in Cisco UCS Manager must match the name of the datacenter previously created in VMware vCenter.</p>
<b>Description</b> field	<p>The user-defined description of the datacenter.</p> <p>Enter up to 256 characters. You can use any characters or spaces except ` (accent mark), \ (backslash), ^ (carat), " (double quote), = (equal sign), &gt; (greater than), &lt; (less than), or ' (single quote).</p>

- Click **Next**.

- Step 5** In the **Create Folder** page, do the following to create a folder in the datacenter:
- Click **Add**.
  - In the **Create Folder** dialog box, complete the following fields:

Name	Description
<b>Name</b> field	<p>The name of the vCenter folder.</p> <p>This name can be between 1 and 16 characters. You can use spaces and any other ASCII characters except for ` (accent), \ (back slash), ^ (carat), " (double quote), / (forward slash), &gt; (greater than), &lt; (less than), or ' (single quote).</p>
<b>Description</b> field	<p>A user-defined description of the folder.</p> <p>Enter up to 256 characters. You can use any characters or spaces except ` (accent mark), \ (backslash), ^ (carat), " (double quote), = (equal sign), &gt; (greater than), &lt; (less than), or ' (single quote).</p>

c) Click **Next**.

**Step 6** On the **Create Distributed Virtual Switches** page, do the following to create a distributed virtual switch in the folder:

- a) Click **Add** to add a distributed virtual switch to the folder.
- b) In the **Create Distributed Virtual Switches** dialog box, complete the following fields:

Name	Description
<b>Name</b> field	The name of the distributed virtual switch.  This name can be between 1 and 16 characters. You can use spaces and any other ASCII characters except for ` (accent), \ (back slash), ^ (carat), " (double quote), / (forward slash), > (greater than), < (less than), or ' (single quote).
<b>Description</b> field	The user-defined description of the distributed virtual switch.  Enter up to 256 characters. You can use any characters or spaces except ` (accent mark), \ (backslash), ^ (carat), " (double quote), = (equal sign), > (greater than), < (less than), or ' (single quote).
<b>Admin State</b> field	This can be one of the following: <ul style="list-style-type: none"> <li>• <b>Enabled</b></li> <li>• <b>Disabled</b></li> </ul> If you disable the DVS, Cisco UCS Manager does not push any configuration changes related to the DVS to VMware vCenter.

c) Click **OK**.

**Step 7** Click **Finish** if you have finished adding all folders and distributed virtual switches to the datacenter. You may need to click **Finish** more than once to exit the wizard. You can stop at any page to add another folder or DVS to the datacenter.

## Adding a Folder to a Datacenter

### Procedure

- Step 1** In the **Navigation** pane, click the **VM** tab.
- Step 2** On the **VM** tab, expand the **VMWare** node.
- Step 3** Expand the vCenter that includes the datacenter to which you want to add a folder.
- Step 4** Right-click the datacenter to which you want to add a folder and choose **Create Folder**.
- Step 5** On the **Create Folder** page, do the following to add a folder to the datacenter:
  - a) Complete the following fields:

Name	Description
<b>Name field</b>	The name of the vCenter folder.  This name can be between 1 and 16 characters. You can use spaces and any other ASCII characters except for ` (accent), \ (back slash), ^ (carat), " (double quote), / (forward slash), > (greater than), < (less than), or ' (single quote).
<b>Description field</b>	A user-defined description of the folder.  Enter up to 256 characters. You can use any characters or spaces except ` (accent mark), \ (backslash), ^ (carat), " (double quote), = (equal sign), > (greater than), < (less than), or ' (single quote).

- b)
  - Click **Next** and continue with Step 6 to create a DVS in the folder.
  - Continue with Step 7 if you do not want to create a DVS in the folder.

**Step 6** On the **Create Distributed Virtual Switches** page, do the following to create a distributed virtual switch in the folder:

- a) Click **Add** to add a distributed virtual switch to the folder.  
b) In the **Create Distributed Virtual Switches** dialog box, complete the following fields:

Name	Description
<b>Name field</b>	The name of the distributed virtual switch.  This name can be between 1 and 16 characters. You can use spaces and any other ASCII characters except for ` (accent), \ (back slash), ^ (carat), " (double quote), / (forward slash), > (greater than), < (less than), or ' (single quote).
<b>Description field</b>	The user-defined description of the distributed virtual switch.  Enter up to 256 characters. You can use any characters or spaces except ` (accent mark), \ (backslash), ^ (carat), " (double quote), = (equal sign), > (greater than), < (less than), or ' (single quote).
<b>Admin State field</b>	This can be one of the following: <ul style="list-style-type: none"> <li>• <b>Enabled</b></li> <li>• <b>Disabled</b></li> </ul> If you disable the DVS, Cisco UCS Manager does not push any configuration changes related to the DVS to VMware vCenter.

- c) Click **OK**.

**Step 7** Click **Finish** if you have finished adding all folders and DVSES to the datacenter.

You may need to click **Finish** more than once to exit the wizard. You can stop at any page to add another folder or DVS.

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## Deleting a Folder from a vCenter

If the folder contains a datacenter, Cisco UCS Manager also deletes that datacenter and any folders and DVSES it contains.

### Procedure

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- Step 1** In the **Navigation** pane, click the **VM** tab.
  - Step 2** On the **VM** tab, expand **All > VMWare**.
  - Step 3** Expand the node for the vCenter that contains the folder you want to delete.
  - Step 4** Right-click the folder and choose **Delete**.
  - Step 5** If a confirmation dialog box displays, click **Yes**.
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## Deleting a Datacenter

If the datacenter contains a folder, Cisco UCS Manager also deletes that folder and any DVS it contains.

### Procedure

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- Step 1** In the **Navigation** pane, click the **VM** tab.
  - Step 2** On the **VM** tab, expand **All > VMWare**.
  - Step 3** If the datacenter that you want to delete is contained in a higher level folder, expand the node for that folder.
  - Step 4** Right-click the datacenter and choose **Delete**.
  - Step 5** If a confirmation dialog box displays, click **Yes**.
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## Deleting a Folder from a Datacenter

If the folder contains a DVS, Cisco UCS Manager also deletes that DVS.

## Procedure

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- Step 1** In the **Navigation** pane, click the **VM** tab.
  - Step 2** On the **VM** tab, expand **All > VMWare**.
  - Step 3** If the datacenter that you want to modify is contained in a higher-level folder, expand the node for that folder.
  - Step 4** Expand the node for the datacenter that contains the folder you want to delete.
  - Step 5** Right-click the folder and choose **Delete**.
  - Step 6** If a confirmation dialog box displays, click **Yes**.
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